7.0 Ambient Impact Assessment

Purpose

This section describes the modeling conducted to assess the ambient air quality impact. The modeling conducted is consistent with an IDEQ approved modeling protocol to support the proposed air permit for the Idaho Cobalt Project.

Model Description / Justification

The model chosen, consistent with the IDEQ approved modeling protocol, is AERMOD, the US EPA approved model recommended by IDEQ. AERMOD has recently replaced the Industrial Source Complex model ISCST3 as the primary recommended model for facilities with multiple emission sources. AERMOD was applied as recommended in EPA's *Guideline on Air Quality Models*, consistent with guidance in IDEQ's *Air Quality Modeling Guideline*, as described and approved in the modeling protocol. Recommended regulatory default options were employed. Terrain data was processed consistent with EPA guidance for AERMAP, as documented in the IDEQ-approved modeling protocol. Meteorological data recommended for this application by Darrin Mehr of the IDEQ Monitoring, Modeling, and Emission Inventory program was supplied by IDEQ. The Prime building downwash algorithm was employed. Modeling analyses were performed for all pollutants emitted above IDEQ emission thresholds. That included PM-10, and NO_2, CO and SO_2. No toxic air pollutants (TAPs) are proposed to be emitted at rates exceeding the IDAPA 585 or 586 TAP threshold emission level (EL). Chemical transformation of emissions was not considered. All these details are included in the modeling protocol.

Final permit modeling included all recommendations included in IDEQ's modeling protocol approval which can be found in Appendix E, Attachment 1. The methodology used to respond to the IDEQ comments in the modeling protocol was documented in writing to Darrin Mehr of IDEQ (Appendix E, Attachment 2), and his approval with comments was received via email (Appendix E, Attachment 3). Copies of the modeling protocol, the IDEQ protocol approval, the responses proposed to address those IDEQ modeling protocol approval comments, and IDEQ's concurrence with those responses are included in Appendix E.

Emission and Source Data

Model stack and emissions data representative of the worst case emissions at the ICP facility were incorporated directly into the air quality modeling analysis. Three operational scenarios were considered: all rock mined at the Ram portal with the tram operating, all rock mined at the Ram portal without an operating tram, and all rock mined at the Sunshine portal (with no tram). Emission rates modeled for each pollutant are the maximum emissions under proposed operations over the duration of the shortest ambient air quality standard for that pollutant. That potentially results in overestimation of longer term emission rates for pollutants that have short term ambient air quality standards, like PM-10 and SO_2.

The emission inventory was developed consistent with worst-case conditions anticipated during operation at the facility consistent with the facility operational plan. The facility emissions were conservatively estimated to exceed IDEQ modeling thresholds for criteria pollutants PM-10, CO, NOx, and SO_2.

Only two stack sources are included, a dust collection baghouse processing emissions inside the crusher building, and a generator for backup power. Stack parameters for each unit were based upon manufacturer's specifications.

The bulk of the air emissions documented in the emission inventory are fugitive emissions associated with the handling, transport and processing of ore and associated tailings. Figure 7-1 shows a project site plan.

Fugitive emissions were incorporated into the model using source size and height parameters based upon the dimensions and layout of the equipment planned to be used. Size and location data from all stationary features, including fugitive sources like ore stockpiles, were taken from project engineering plans. Transfers from mobile sources (for example, truck and tram drops) were based upon dimensions of equipment anticipated to be used at the facility. Building heights were roof peak heights from project engineering plans. Tank heights used are from ground base to the top of the tank from the same engineering plans. Model volume sources are used at 80 foot intervals to represent dust emissions over onsite 40 foot wide roads. Appendix E, Attachment 4, provides a summary of the BPIP-Prime input data and results documenting the building downwash parameters included in the modeling. The final building downwash information used in the modeling analysis is unchanged from that presented in the modeling protocol.

Table 7-1 summarizes the draft model source data consistent with the proposed action, under the tram ore transport scenario. Yellow highlighted sources are from the Tram scenario only. In the Ram portal scenario, the yellow highlighted sources would be replaced by the orange highlighted sources. The Sunshine portal would include the green highlighted sources, but would eliminate the EP901C road sources along the road from between the Ram portal and the crusher access road. For the shorter Sunshine mine portal scenario, hauling road emissions used the same emissions per road volume source as for the longer Ram portal no tram scenario. The derivation of all model emissions data is documented in the emission inventory accompanying this permit application. The derivation of all model source parameters other than emission rates and mapping are documented in the model source data spreadsheet accompanying this application in the electronic file submission.

Table 7-1 Model Source Data

POINT SOURCES		Easting (X)	Northing (Y)	Base Elev	Stk Ht	Temp	Exit Vel	Stk Diam	PMTE N	PMTE NAN	NOX	SO2	CO
Src ID	Source Descr	(m)	(m)	(m)	(ft)	(°F)	(fps)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)

EP201	dust collector baghouse stack	708194.5	5001702.3	2435.3	36	68.0	63.7	3	0.125	0.210			
EP101	backup generator	708273.1	5001662.4	2427.4	3	957	306.4	0.67	0.783	0.196	3.637	4.526	6.155

AREA SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Ht	East Leng	Nor Leng	Angle from North	Vert Dim	PMTE N	PMTE NAN	NOX	SO2	CO
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)		(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)
EP1101	transf to tram bin	707417.2	5001946.0	2133.4	8.0	12.0	10.0		6.0	0.002	0.003			
EP1102	transf from tram bin to tram	707418.8	5001947.3	2134.1	5.0	7.0	5.0		3.0	0.110	0.220			
EP302	transf from tram to or stkpl	708143	5001639.3	2444.7	15.0	10.0	10.0		10.0	0.110	0.154			
EP402	transf from tram to wst rkpl	708120.53	5001648.9	2443.5	15.0	10.0	10.0		10.0	0.110	0.066			
EP403	loader grab from WR stkpl	708121	5001643.0	2444.3	4.0	8.2	4.9		4.0	0.009	0.029			
EP404	loader drop WR to truck	708119.75	5001638.0	2444.9	12.0	19.7	9.8		4.0	0.009	0.029			
EP303	loader grab from ore stkpl	708152	5001651.0	2444.1	4.0	8.2	4.9	40	4.0	0.040	0.067			
EP1001	loader traffic to PCFB	708154	5001654.0	2443.8	4.0	9.8	72.2	38	8.0	0.149	0.250			
EP503	loader drop tails to truck	708268.15	5001590.3	2425.1	12.0	19.7	9.8		4.0	0.000	0.000			
EP601	WRdroptoTWSF	708815	5001868.3	2365.5	6.0	15.0	15.0		12.0	0.002	0.001			
EP604	TailingsdroptoTWSF	708815	5001868.3	2365.5	6.0	15.0	15.0		12.0	0.000	0.001			
EP2001	Notramdrop2orestkpile	708143	5001639.3	2444.7	6.0	10.0	10.0		12.0	0.001	0.002			
EP1701	load/unldattopsoilstkpile	708530	5001430.0	2393.2	6.0	15.0	15.0		12.0	0.001	0.000			
EP1301	minetkdumptopile	707437.69	5001916.0	2152.5	6.0	15.0	15.0		12.0	0.002	0.003			
EP1303	loadergrabfrompile	707430.06	5001916.5	2148.1	4.0	8.2	4.9		4.0	0.048	0.096			
EP1304	loaderdroptooretruck	707425.56	5001918.0	2145.1	12.0	19.7	9.8		4.0	0.048	0.096			

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Ht	Horiz Dim	Vert Dim	PMTE N	PMTEN AN	NOX	SO2	CO
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)
EP901A1	RoadontositeS	708424.4	5001209.6	2413.0	5.0	37.21	5.58	0.0348	0.0231			
EP901A2	RoadontositeS	708410.3	5001229.9	2411.6	5.0	37.21	5.58	0.0348	0.0231			
EP901A3	RoadontositeS	708396.3	5001250.1	2411.3	5.0	37.21	5.58	0.0348	0.0231			
EP901A4	RoadontositeS	708382.3	5001270.4	2409.0	5.0	37.21	5.58	0.0348	0.0231			
EP901A5	RoadontositeS	708371.6	5001294.4	2405.0	5.0	37.21	5.58	0.0348	0.0231			
EP901A6	RoadontositeS	708360.9	5001318.3	2403.7	5.0	37.21	5.58	0.0348	0.0231			
EP901A7	RoadontositeS	708350.2	5001342.2	2405.9	5.0	37.21	5.58	0.0348	0.0231			
EP901A8	RoadontositeS	708341.6	5001368.1	2409.0	5.0	37.21	5.58	0.0348	0.0231			
EP901A9	RoadontositeS	708333.0	5001394.0	2411.7	5.0	37.21	5.58	0.0348	0.0231			
EP901A10	RoadontositeS	708324.4	5001419.8	2414.1	5.0	37.21	5.58	0.0348	0.0231			
EP901A11	RoadontositeS	708316.5	5001440.1	2415.4	5.0	37.21	5.58	0.0348	0.0231			
EP901A12	RoadontositeS	708308.7	5001460.3	2416.6	5.0	37.21	5.58	0.0348	0.0231			
EP901A13	RoadontositeS	708300.9	5001480.5	2417.9	5.0	37.21	5.58	0.0348	0.0231			

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Ht	Horiz Dim	Vert Dim	PMTEN	PMTENAN	NOX	SO2	CO
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)
EP901A14	RoadontositeS	708283.7	5001498.6	2421.3	5.0	37.21	5.58	0.0348	0.0231			
EP901A15	RoadontositeS	708266.6	5001516.8	2424.6	5.0	37.21	5.58	0.0348	0.0231			
EP901A16	RoadontositeS	708249.5	5001535.0	2427.4	5.0	37.21	5.58	0.0348	0.0231			
EP901B1	Roadtocrushconcbldgs	708172.5	5001601.6	2442.0	5.0	37.21	5.58	0.0983	0.0653			
EP901B2	Roadtocrushconcbldgs	708171.0	5001575.7	2442.0	5.0	37.21	5.58	0.0983	0.0653			
EP901B3	Roadtocrushconcbldgs	708169.5	5001549.9	2441.6	5.0	37.21	5.58	0.0983	0.0653			
EP901B4	Roadtocrushconcbldgs	708168.0	5001524.0	2441.4	5.0	37.21	5.58	0.0983	0.0653			
EP901B5	Roadtocrushconcbldgs	708180.5	5001500.4	2439.6	5.0	37.21	5.58	0.0983	0.0653			
EP901B6	Roadtocrushconcbldgs	708193.0	5001476.8	2437.3	5.0	37.21	5.58	0.0983	0.0653			
EP901B7	Roadtocrushconcbldgs	708205.5	5001453.3	2435.6	5.0	37.21	5.58	0.0983	0.0653			
EP901B8	Roadtocrushconcbldgs	708222.7	5001435.8	2432.9	5.0	37.21	5.58	0.0983	0.0653			
EP901B9	Roadtocrushconcbldgs	708240.0	5001418.3	2430.1	5.0	37.21	5.58	0.0983	0.0653			
EP901B10	Roadtocrushconcbldgs	708257.2	5001400.8	2427.4	5.0	37.21	5.58	0.0983	0.0653			
EP901D1	RoadtoTWSFarea	708330.0	5001538.5	2415.0	5.0	37.21	5.58	0.0361	0.0240			
EP901D2	RoadtoTWSFarea	708340.3	5001563.1	2414.5	5.0	37.21	5.58	0.0361	0.0240			
EP901D3	RoadtoTWSFarea	708350.6	5001587.7	2413.8	5.0	37.21	5.58	0.0361	0.0240			
EP901D4	RoadtoTWSFarea	708360.9	5001612.3	2412.9	5.0	37.21	5.58	0.0361	0.0240			
EP901D5	RoadtoTWSFarea	708371.2	5001636.9	2411.4	5.0	37.21	5.58	0.0361	0.0240			
EP901D6	RoadtoTWSFarea	708381.5	5001661.5	2409.8	5.0	37.21	5.58	0.0361	0.0240			
EP901D7	RoadtoTWSFarea	708391.8	5001686.1	2407.9	5.0	37.21	5.58	0.0361	0.0240			
EP901D8	RoadtoTWSFarea	708402.5	5001710.5	2406.5	5.0	37.21	5.58	0.0361	0.0240			
EP901D9	RoadtoTWSFarea	708413.2	5001734.9	2403.9	5.0	37.21	5.58	0.0361	0.0240			
EP901D10	RoadtoTWSFarea	708423.8	5001759.3	2401.4	5.0	37.21	5.58	0.0361	0.0240			
EP901D11	RoadtoTWSFarea	708443.7	5001776.5	2399.5	5.0	37.21	5.58	0.0361	0.0240			
EP901D12	RoadtoTWSFarea	708463.6	5001793.7	2398.3	5.0	37.21	5.58	0.0361	0.0240			
EP901D13	RoadtoTWSFarea	708483.5	5001810.9	2396.8	5.0	37.21	5.58	0.0361	0.0240			
EP901D14	RoadtoTWSFarea	708506.8	5001823.9	2395.2	5.0	37.21	5.58	0.0361	0.0240			
EP901D15	RoadtoTWSFarea	708530.1	5001836.8	2393.7	5.0	37.21	5.58	0.0361	0.0240			
EP901D16	RoadtoTWSFarea	708553.4	5001849.8	2392.6	5.0	37.21	5.58	0.0361	0.0240			
EP901D17	RoadtoTWSFarea	708576.7	5001862.7	2391.8	5.0	37.21	5.58	0.0361	0.0240			
EP901D18	RoadtoTWSFarea	708600.0	5001875.7	2390.6	5.0	37.21	5.58	0.0361	0.0240			
EP901D19	RoadtoTWSFarea	708623.3	5001888.7	2388.2	5.0	37.21	5.58	0.0361	0.0240			
EP901D20	RoadtoTWSFarea	708646.6	5001901.6	2384.7	5.0	37.21	5.58	0.0361	0.0240			
EP901D21	RoadtoTWSFarea	708669.9	5001914.6	2381.0	5.0	37.21	5.58	0.0361	0.0240			
EP901D22	RoadtoTWSFarea	708693.2	5001927.5	2378.7	5.0	37.21	5.58	0.0361	0.0240			
EP901D23	RoadtoTWSFarea	708718.6	5001922.5	2376.1	5.0	37.21	5.58	0.0361	0.0240			
EP901D24	RoadtoTWSFarea	708743.9	5001917.5	2373.2	5.0	37.21	5.58	0.0361	0.0240			
EP901D25	RoadtoTWSFarea	708769.3	5001912.5	2370.3	5.0	37.21	5.58	0.0361	0.0240			
EP901C1	RoadonsiteNportalarea	707622.2	5001602.9	2288.9	5.0	37.21	5.58	0.0367	0.0244			
EP901C2	RoadonsiteNportalarea	707615.1	5001628.4	2286.7	5.0	37.21	5.58	0.0367	0.0244			

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Ht	Horiz Dim	Vert Dim	PMTEN	PMTENAN	NOX	SO2	CO
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)
EP901C3	RoadonsiteNportalarea	707607.9	5001654.0	2283.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C4	RoadonsiteNportalarea	707600.8	5001679.6	2280.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C5	RoadonsiteNportalarea	707604.0	5001706.0	2281.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C6	RoadonsiteNportalarea	707607.2	5001732.3	2281.4	5.0	37.21	5.58	0.0367	0.0244			
EP901C7	RoadonsiteNportalarea	707610.3	5001758.7	2279.4	5.0	37.21	5.58	0.0367	0.0244			
EP901C8	RoadonsiteNportalarea	707616.5	5001784.5	2277.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C9	RoadonsiteNportalarea	707622.7	5001810.4	2273.9	5.0	37.21	5.58	0.0367	0.0244			
EP901C10	RoadonsiteNportalarea	707628.9	5001836.2	2271.6	5.0	37.21	5.58	0.0367	0.0244			
EP901C11	RoadonsiteNportalarea	707649.5	5001852.2	2277.2	5.0	37.21	5.58	0.0367	0.0244			
EP901C12	RoadonsiteNportalarea	707670.0	5001868.2	2280.8	5.0	37.21	5.58	0.0367	0.0244			
EP901C13	RoadonsiteNportalarea	707690.5	5001884.2	2279.8	5.0	37.21	5.58	0.0367	0.0244			
EP901C14	RoadonsiteNportalarea	707714.4	5001896.0	2279.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C15	RoadonsiteNportalarea	707738.3	5001907.7	2277.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C16	RoadonsiteNportalarea	707762.2	5001919.5	2273.2	5.0	37.21	5.58	0.0367	0.0244			
EP901C17	RoadonsiteNportalarea	707783.7	5001935.0	2267.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C18	RoadonsiteNportalarea	707805.2	5001950.6	2260.8	5.0	37.21	5.58	0.0367	0.0244			
EP901C19	RoadonsiteNportalarea	707826.8	5001966.2	2257.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C20	RoadonsiteNportalarea	707840.4	5001988.7	2254.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C21	RoadonsiteNportalarea	707854.0	5002011.2	2248.8	5.0	37.21	5.58	0.0367	0.0244			
EP901C22	RoadonsiteNportalarea	707867.6	5002033.7	2252.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C23	RoadonsiteNportalarea	707866.9	5002060.1	2249.6	5.0	37.21	5.58	0.0367	0.0244			
EP901C24	RoadonsiteNportalarea	707866.3	5002086.5	2246.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C25	RoadonsiteNportalarea	707865.7	5002113.0	2241.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C26	RoadonsiteNportalarea	707860.1	5002139.0	2239.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C27	RoadonsiteNportalarea	707854.6	5002165.1	2241.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C28	RoadonsiteNportalarea	707849.0	5002191.1	2241.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C29	RoadonsiteNportalarea	707844.5	5002217.4	2245.2	5.0	37.21	5.58	0.0367	0.0244			
EP901C30	RoadonsiteNportalarea	707839.9	5002243.7	2247.6	5.0	37.21	5.58	0.0367	0.0244			
EP901C31	RoadonsiteNportalarea	707835.4	5002269.9	2246.9	5.0	37.21	5.58	0.0367	0.0244			
EP901C32	RoadonsiteNportalarea	707830.5	5002296.1	2244.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C33	RoadonsiteNportalarea	707825.6	5002322.3	2240.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C34	RoadonsiteNportalarea	707820.6	5002348.4	2236.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C35	RoadonsiteNportalarea	707819.2	5002374.9	2236.4	5.0	37.21	5.58	0.0367	0.0244			
EP901C36	RoadonsiteNportalarea	707817.9	5002401.3	2236.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C37	RoadonsiteNportalarea	707816.5	5002427.7	2235.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C38	RoadonsiteNportalarea	707809.7	5002410.6	2232.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C39	RoadonsiteNportalarea	707803.0	5002393.5	2228.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C40	RoadonsiteNportalarea	707796.3	5002376.4	2224.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C41	RoadonsiteNportalarea	707796.5	5002349.7	2221.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C42	RoadonsiteNportalarea	707796.8	5002323.1	2219.9	5.0	37.21	5.58	0.0367	0.0244			

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Ht	Horiz Dim	Vert Dim	PMTEN	PMTENAN	NOX	SO2	CO
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)
EP901C43	RoadonsiteNportalarea	707797.0	5002296.5	2220.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C44	RoadonsiteNportalarea	707796.0	5002269.8	2220.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C45	RoadonsiteNportalarea	707795.0	5002243.2	2220.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C46	RoadonsiteNportalarea	707794.0	5002216.5	2218.6	5.0	37.21	5.58	0.0367	0.0244			
EP901C47	RoadonsiteNportalarea	707793.0	5002189.9	2214.6	5.0	37.21	5.58	0.0367	0.0244			
EP901C48	RoadonsiteNportalarea	707792.0	5002163.2	2209.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C49	RoadonsiteNportalarea	707791.0	5002136.6	2203.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C50	RoadonsiteNportalarea	707786.3	5002110.8	2201.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C51	RoadonsiteNportalarea	707781.6	5002085.0	2200.8	5.0	37.21	5.58	0.0367	0.0244			
EP901C52	RoadonsiteNportalarea	707776.9	5002059.3	2204.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C53	RoadonsiteNportalarea	707754.0	5002047.0	2203.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C54	RoadonsiteNportalarea	707731.1	5002034.7	2204.9	5.0	37.21	5.58	0.0367	0.0244			
EP901C55	RoadonsiteNportalarea	707708.3	5002022.4	2211.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C56	RoadonsiteNportalarea	707681.9	5002020.5	2208.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C57	RoadonsiteNportalarea	707655.6	5002018.6	2203.8	5.0	37.21	5.58	0.0367	0.0244			
EP901C58	RoadonsiteNportalarea	707629.3	5002016.7	2197.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C59	RoadonsiteNportalarea	707603.5	5002010.0	2194.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C60	RoadonsiteNportalarea	707577.7	5002003.3	2194.2	5.0	37.21	5.58	0.0367	0.0244			
EP901C61	RoadonsiteNportalarea	707551.9	5001996.6	2193.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C62	RoadonsiteNportalarea	707535.7	5001976.1	2195.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C63	RoadonsiteNportalarea	707519.5	5001955.7	2192.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C64	RoadonsiteNportalarea	707503.3	5001935.3	2184.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C65	RoadonsiteNportalarea	707493.3	5001910.5	2184.2	5.0	37.21	5.58	0.0367	0.0244			
EP901C66	RoadonsiteNportalarea	707483.4	5001885.8	2185.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C67	RoadonsiteNportalarea	707473.4	5001861.1	2187.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C68	RoadonsiteNportalarea	707461.2	5001837.4	2186.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C69	RoadonsiteNportalarea	707449.1	5001813.7	2183.9	5.0	37.21	5.58	0.0367	0.0244			
EP901C70	RoadonsiteNportalarea	707436.9	5001789.9	2178.6	5.0	37.21	5.58	0.0367	0.0244			
EP901C71	RoadonsiteNportalarea	707429.6	5001764.4	2175.2	5.0	37.21	5.58	0.0367	0.0244			
EP901C72	RoadonsiteNportalarea	707422.3	5001738.9	2171.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C73	RoadonsiteNportalarea	707415.1	5001713.5	2167.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C74	RoadonsiteNportalarea	707413.8	5001686.9	2167.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C75	RoadonsiteNportalarea	707412.6	5001660.4	2166.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C76	RoadonsiteNportalarea	707411.4	5001633.9	2158.8	5.0	37.21	5.58	0.0367	0.0244			
EP901C77	RoadonsiteNportalarea	707410.1	5001607.3	2154.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C78	RoadonsiteNportalarea	707408.7	5001580.6	2151.4	5.0	37.21	5.58	0.0367	0.0244			
EP901C79	RoadonsiteNportalarea	707404.8	5001606.9	2150.4	5.0	37.21	5.58	0.0367	0.0244			
EP901C80	RoadonsiteNportalarea	707401.0	5001633.2	2149.6	5.0	37.21	5.58	0.0367	0.0244			
EP901C81	RoadonsiteNportalarea	707397.1	5001659.5	2153.1	5.0	37.21	5.58	0.0367	0.0244			
EP901C82	RoadonsiteNportalarea	707395.6	5001686.1	2153.4	5.0	37.21	5.58	0.0367	0.0244			

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Ht	Horiz Dim	Vert Dim	PMTEN	PMTENAN	NOX	SO2	CO
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)
EP901C83	RoadonsiteNportalarea	707394.2	5001712.7	2152.7	5.0	37.21	5.58	0.0367	0.0244			
EP901C84	RoadonsiteNportalarea	707392.7	5001739.3	2151.4	5.0	37.21	5.58	0.0367	0.0244			
EP901C85	RoadonsiteNportalarea	707397.9	5001773.5	2153.0	5.0	37.21	5.58	0.0367	0.0244			
EP901C86	RoadonsiteNportalarea	707403.1	5001807.8	2154.2	5.0	37.21	5.58	0.0367	0.0244			
EP901C87	RoadonsiteNportalarea	707408.3	5001842.0	2153.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C88	RoadonsiteNportalarea	707408.9	5001868.6	2148.3	5.0	37.21	5.58	0.0367	0.0244			
EP901C89	RoadonsiteNportalarea	707409.5	5001895.3	2142.5	5.0	37.21	5.58	0.0367	0.0244			
EP901C90	RoadonsiteNportalarea	707410.1	5001922.0	2135.1	5.0	37.21	5.58	0.0367	0.0244			
EP1201	primay crusher feed bin	708170.3	5001673.2	2441.1	15.0	5.58	6.99	0.0401	0.0673			
EP502	loadfromaili stkpl totk	708271.2	5001601.8	2424.9	5.0	4.66	6.99	0.0001	0.0005			
EP1401	fine ore bin vent	708286.0	5001657.5	2424.7	61.0	1.41	28.38	0.0029	0.0049			
EP1501	cement silo intakevent	708283.6	5001612.6	2423.6	48.0	1.41	22.31	0.0068	0.0007			
EP1601	Mine vent for UG emiss	707454.0	5001918.0	2161.0	7.5	13.95	6.98	1.5800	1.7200	4.69	0.57	18.98
EP1502	cement silo outflow fugs	708280.6	5001612.6	2424.0	48.0	1.41	22.31	0.0006	0.0001			
EP3001	Sunshine mine portal	707425.9	5000906.0	2384.6	7.5	13.95	6.98	1.5800	1.7200	4.69	0.57	18.98
EP9021	Sunshportalaccrdsegment	707716.4	5000832.9	2364.8	5.0	37.21	5.58	0.1082	0.0720			
EP9022	Sunshportalaccrdsegment	707689.3	5000838.6	2362.6	5.0	37.21	5.58	0.1082	0.0720			
EP9023	Sunshportalaccrdsegment	707662.1	5000844.3	2362.3	5.0	37.21	5.58	0.1082	0.0720			
EP9024	Sunshportalaccrdsegment	707635.0	5000850.0	2364.5	5.0	37.21	5.58	0.1082	0.0720			
EP9025	Sunshportalaccrdsegment	707607.9	5000855.7	2365.4	5.0	37.21	5.58	0.1082	0.0720			
EP9026	Sunshportalaccrdsegment	707580.7	5000861.4	2369.5	5.0	37.21	5.58	0.1082	0.0720			
EP9027	Sunshportalaccrdsegment	707553.6	5000867.1	2375.7	5.0	37.21	5.58	0.1082	0.0720			
EP9028	Sunshportalaccrdsegment	707527.5	5000876.3	2381.4	5.0	37.21	5.58	0.1082	0.0720			
EP9029	Sunshportalaccrdsegment	707502.5	5000888.8	2383.8	5.0	37.21	5.58	0.1082	0.0720			
EP90210	Sunshportalaccrdsegment	707477.5	5000901.3	2382.5	5.0	37.21	5.58	0.1082	0.0720			
EP90211	Sunshportalaccrdsegment	707452.5	5000913.8	2376.6	5.0	37.21	5.58	0.1082	0.0720			

CIRCULAR AREA SOURCES		Easting (X)	Northing (Y)	Base Elev	Release Height	Radius of Circle	Vert Dim	PMTEN	PMTENAN	NOX	SO2	CO
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)
EP401	waste rock storage pile	708122.0	5001650.4	2443.4	6.0	20.0	6.0	0.003	0.012			
EP301	coarse ore stock pile	708144.5	5001640.8	2444.6	8.0	40.0	8.0	0.006	0.276			
EP501	concrbuildingtailingstkpile	708259.0	5001610.0	2427.5	3.3	8.2	3.3	0.000	0.000			
EP602	TWSFareamanagement	708700.0	5001650.0	2381.3	4.9	246.1	9.8	0.197	0.142			
EP1702	topsoilstkpile	708609.0	5001378.5	2385.7	8.0	300.0		0.294	1.288			
EP1302	Mined rock stockpile	707434.4	5001916.0	2150.6	4.0	10.5	19.7	0.007				

POLYGONAL AREA SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Height	Number of Vertices	Vertical Dim	PMTEN	PMTENAN
Source ID	Source Description	(m)	(m)	(m)	(m)		(m)	(lb/hr·ft²)	(lb/hr·ft²)
EP603	Tailing Waste Storage Facility	709125.7	5001478.1	2355.5	3	7	6	2.40E-07	2.40E-07

POLYGONAL AREA SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Height	Number of Vertices	Vertical Dim	PMTEN	PMTENAN
Source ID	Source Description	(m)	(m)	(m)	(m)		(m)	(lb/hr·ft²)	(lb/hr·ft²)
	(TWSF)								

Modeling analyses were performed for all pollutants listed in Table 7-1, for each scenario, to estimate maximum impacts during each averaging period for which an applicable ambient air quality impact limit exists. While the annual PM-10 emission rates are shown, modeling is not provided because compliance with the annual average standard was more conservatively demonstrated using the 24 hour average emissions. All model sources had emissions understood to represent worst-case permitted emissions for each averaging period to estimate the worst case impacts under allowable emissions from the facility. The stack parameters represent planned actual emissions scenarios. Potential worst-case impacts for each pollutant and averaging period were directly output by the model. All model source data underwent quality assurance review by the project engineering design team, Formation Capital, and Wildhorse Environmental engineers.

Two model source factors were employed. The wind speed factor was used for the wind erosion emissions from the stockpiles, which were calculated based upon a threshold wind speed of 12 miles per hour. The analysis conservatively used those emission factors for the 4 highest wind speeds of the six default wind speed categories in AERMOD. The road emissions also employed a factor which cut the max hourly road dust emissions in half during the winter. The onsite meteorological data confirms the obvious for the elevation of the facility; the ground will be frozen for the vast majority of the winter, and wet enough to minimize dust emissions at almost all other times.

Building downwash was accounted for by including in the AERMOD model analysis Prime building downwash from all buildings within the facility within 5 building dimensions of facility emission sources. The lone exceptions were low buildings far from any model source and the ambient air boundary whose wake effect could not possibly affect ambient air.

Site review indicated that there were not any external co-contributing sources potentially affecting the project area. Mr. Mehr of IDEQ did not identify any cocontributing sources to include during pre-application meeting, discussions, or the modeling protocol review. Therefore, no cocontributing sources were included in the modeling analysis, consistent with the IDEQ approved modeling protocol.

Figure 7-1 shows the model layout, with the public access / ambient air boundary. That ambient air boundary is defined and defended below, consistent with IDEQ recommendations during the protocol review and follow up. Facility emission sources are shown and labeled in red. The primary sources that can be seen in Figure 7-1 are the facility roads. The Tailings and Waste Storage Facility (TWSF), and the topsoil stockpile are in the southeastern portion of the facility ambient air boundary. The Ram mine portal is at the end of the northern road. The Sunshine mine portal is at the end of the southwestern road. The crusher and concentrator buildings are near the road concentration points west of the TWSF, not far east of the ambient air boundary. More

detail on facility emission sources can be seen on the figures that follow for the three primary activity areas. The background grid is the UTM coordinate system, NAD 27, whose units are in meters. The dots at UTM grid corners beyond the property boundary indicate the inner model receptors.

Figure 7-1 Model Facility Layout

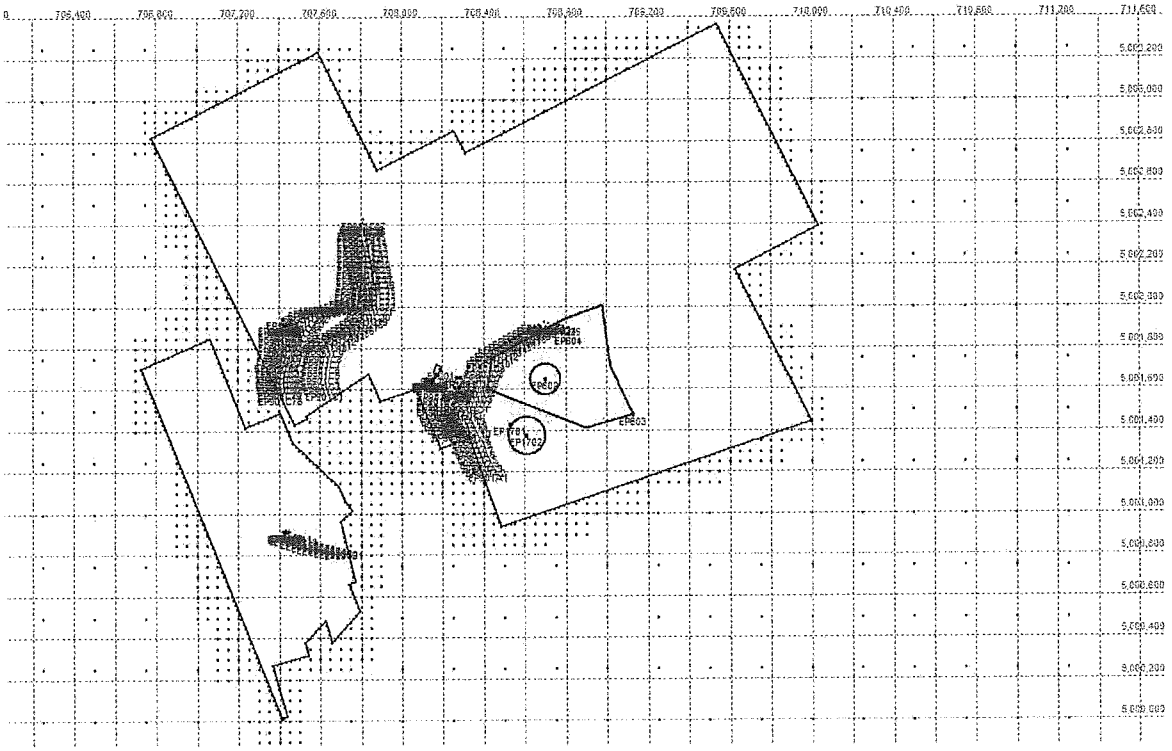


Figure 7-2 shows the model source details in the vicinity of the Ram mine portal. The vast majority of the ore from the project is expected to come from the Ram portal. The bunching of sources in the NW corner represents the tram loading area. The mine portal is seen as EP1601 in the center of the figure. The sources to the west of the portal represent the dumping of ore from mine trucks into a stockpile, and the loading of that ore into larger road trucks, all of which would occur only under the "No Tram" scenario. The "Tram" scenario would instead unload the ore into a hopper to the northwest of the portal, transfer it into tram buckets, and tram it overhead down to piles near the crusher building. The dots to the south and east represent the road switching back SE toward the crusher and concentrator building areas.

Figure 7-2 Model Layout: Ram Mine Portal Vicinity

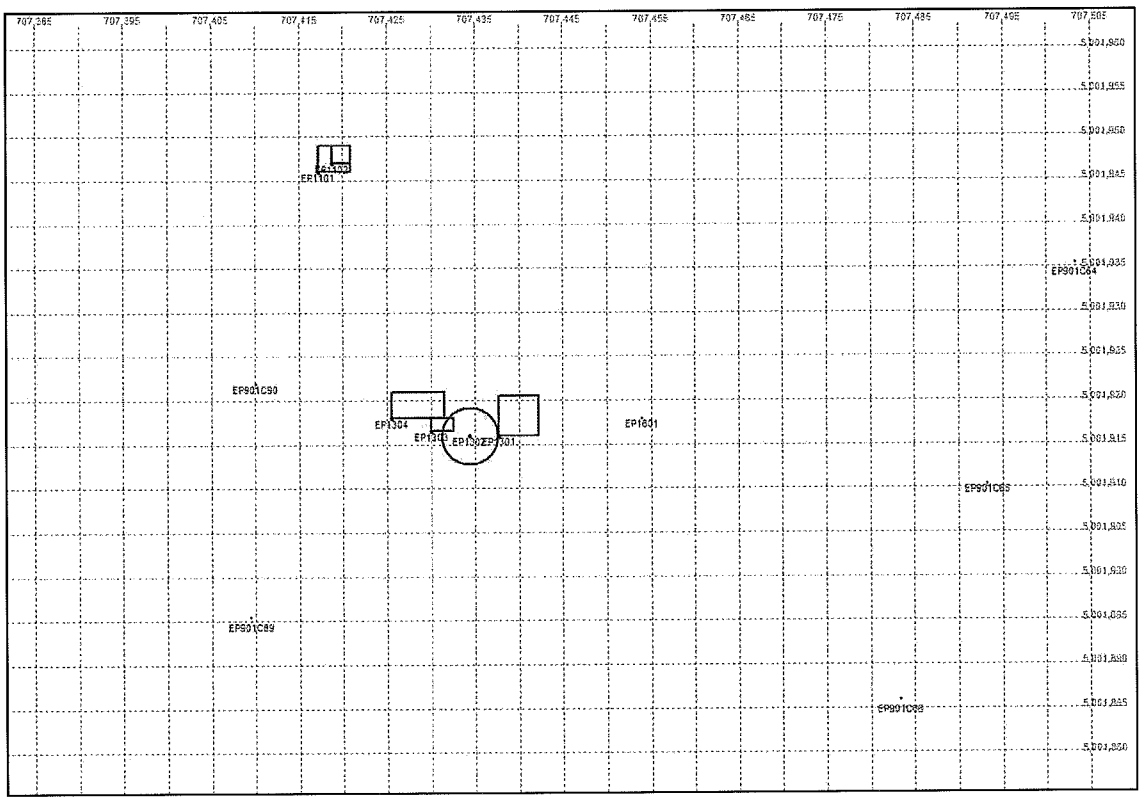


Figure 7-3 shows the model source details in the vicinity of the Sunshine mine portal. Ore from the Sunshine portal is expected to represent approximately 15% of the overall ore processed over the life of the project. Under this scenario, there will be a higher volume of lighter trucks on the surface roads because the ore would remain in the 20 ton trucks underground for transport to the crusher building area, unlike the Ram portal No Tram scenario where it would be transferred to larger trucks. The mine portal is seen as EP3001 in the center of the figure. A tram is not being considered for the Sunshine portal. The dots to the west represent the road heading up toward the crusher and concentrator building areas.

Figure 7-3 Model Layout: Sunshine Mine Portal Vicinity

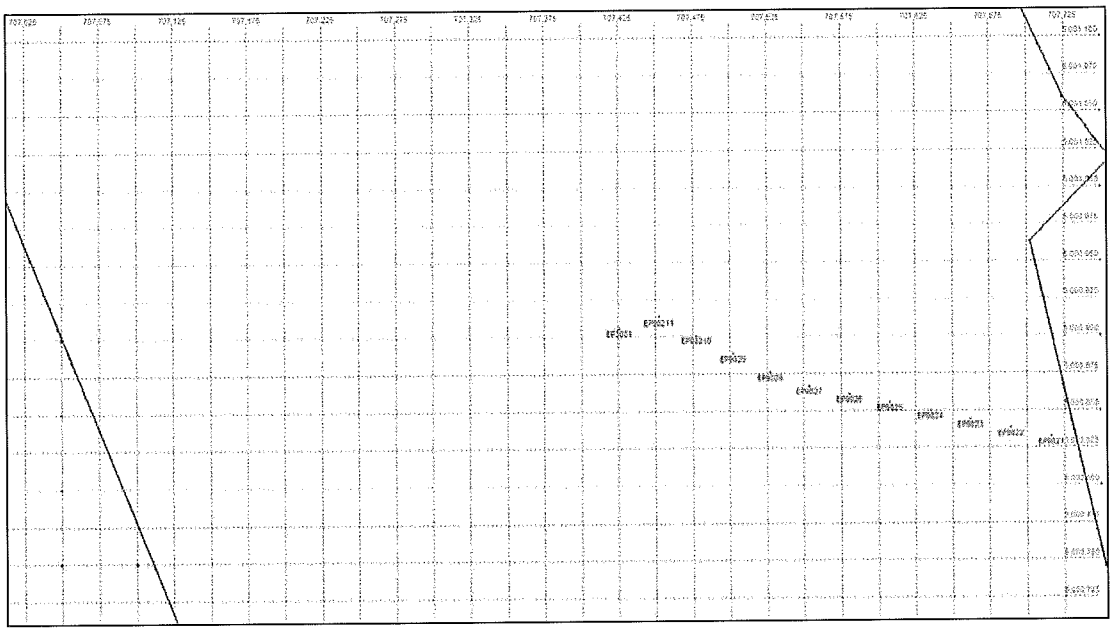
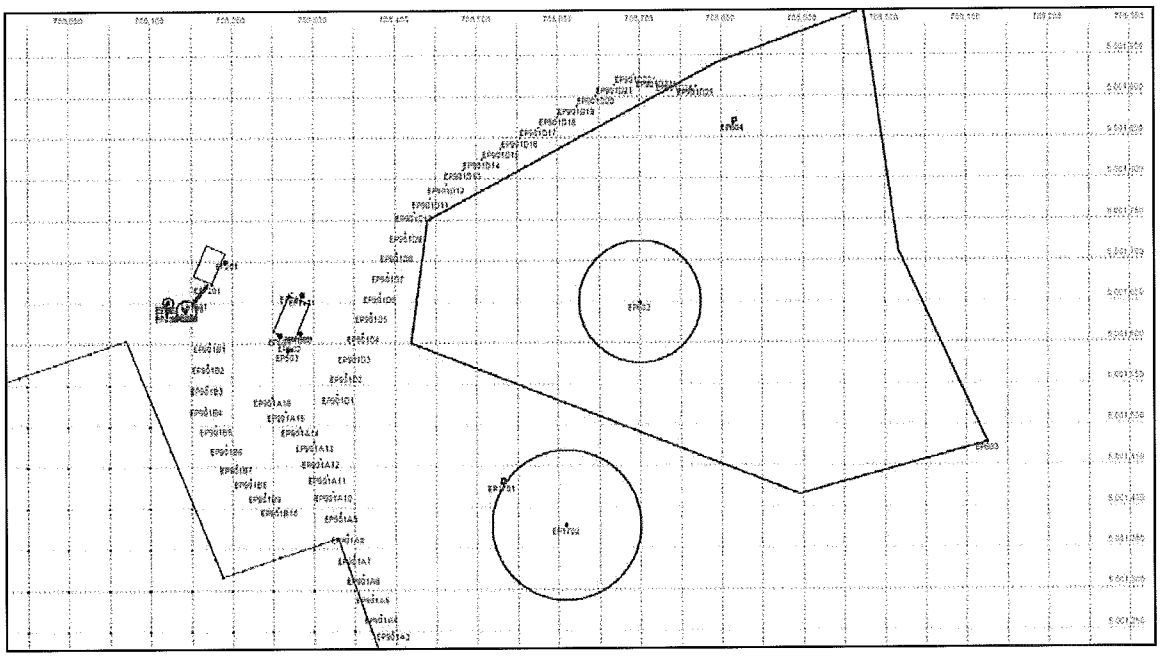


Figure 7-4 shows the model source details in the vicinity of the crusher and concentrator buildings where ore extracted from the mine via the portal is processed. The sources and buildings associated with those activities are shown on the west side of the figure. The crusher building, outlined in black, is located in the NW. The stockpiles of ore and waste rock, and transfers from there to the crusher feed bin are located S and SW of the crusher building. The dust collector stack which filters crusher building emissions is on the west side of the building. The concentrator building, outlined in black, is located more centrally in this figure. The fine ore bin is off the north side of the building, and the cement silo is off the east side of the building. Transfers and transport of materials are located to south of the building. Red dots show the roads accessing the crusher / concentrator area, and the paths to the TWSF tailings and waste rock management area to the east, and the topsoil stockpile SW of the TWSF.

Figure 7-4 Model Layout: Crusher and Concentrator Building Vicinity



Ambient Air Boundary / Receptor Network / Model Domain

The Idaho Cobalt Project is located in a remote, mountainous area in east-central Idaho. There are no residences for miles, and limited roads. Public access is prevented by a gate on the only access road up Blackbird Creek from the south, controlled via a lock by the project proponents and the staff at the Blackbird Mine. The road to the north dead ends, so the gate to the south controls all vehicle access. Though very little if any non-project access is expected on any of the high elevation claim area terrain far beyond the locked gate, the ambient air boundaries for this project are based only upon the areas within those claims where ICP can and will control public access. Those areas will be signed "No Trespassing", and project staff will be trained to notice and discourage unauthorized access. That area includes only the northern half of the claim boundary for which the

ICP has received a Record of Decision on its Plan of Operations from the Forest Service. The project public access / ambient air boundary extends south across the Sun claims shown in Figure 1-2, and about half of the way south through the HZ claims. The entire area within those ambient air boundaries will be in direct line of sight from the activity areas for the proposed action, the Ram mine portal to the north, the Sunshine mine portal to the west, and the crusher / concentrator area and TWSF on the high point somewhat centrally located within that area. They were selected because they describe the closest that the public can approach the project without exerting strenuous physical effort, such as fording streams and scrambling up steep slopes and boulders on heavily wooded hillsides covered with downed timber.

Consistent with recommendations made and accepted by IDEQ in responses to the IDEQ comments in the modeling protocol letter (see Appendix E, Attachments 1, 2, and 3), model receptors were placed from the public access limit out at least 1 kilometer in every direction. The dense inner model receptors placed at 25 meter intervals along the ambient air boundary can be seen as black dots outside the ambient air boundary in Figure 7-5. The AERMOD modeling domain was conservatively calculated to include nearly the entire USGS quad for any receptor or any elevated point beyond the edge of the receptor network that meets the AERMAP / AERMOD guidance condition of 10% elevation gain. This method is built into the BeeLine BEEST software used to prepare these analyses, and is recommended as conservative in meeting or exceeding new EPA guidance by software developer Dick Perry of Bee-Line software. Twenty USGS quads were included in the modeling domain. Documentation on the AERMOD domain calculations and identified USGS quads is included among the electronic files accompanying this submission.

Figure 7-5 shows the model receptor network. Receptor density is 50 meters for the first 100 meters along the ambient air boundary. Actually, that receptor density is carried well beyond the 100 meters in the vicinity of model sources, and slightly lower where impacts are shown to be insignificant. The outer model receptors are spaced at 250 meter intervals out to at least 1 kilometer.

Figure 7-5 Model Receptor Network

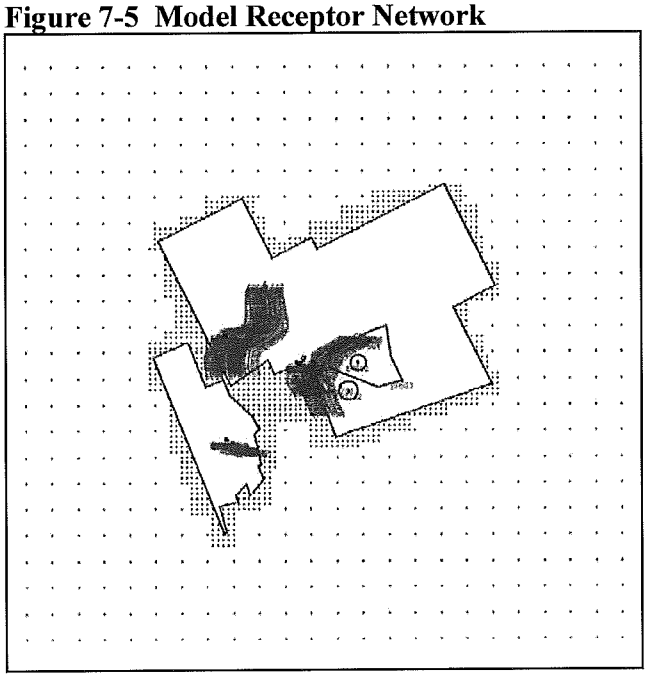
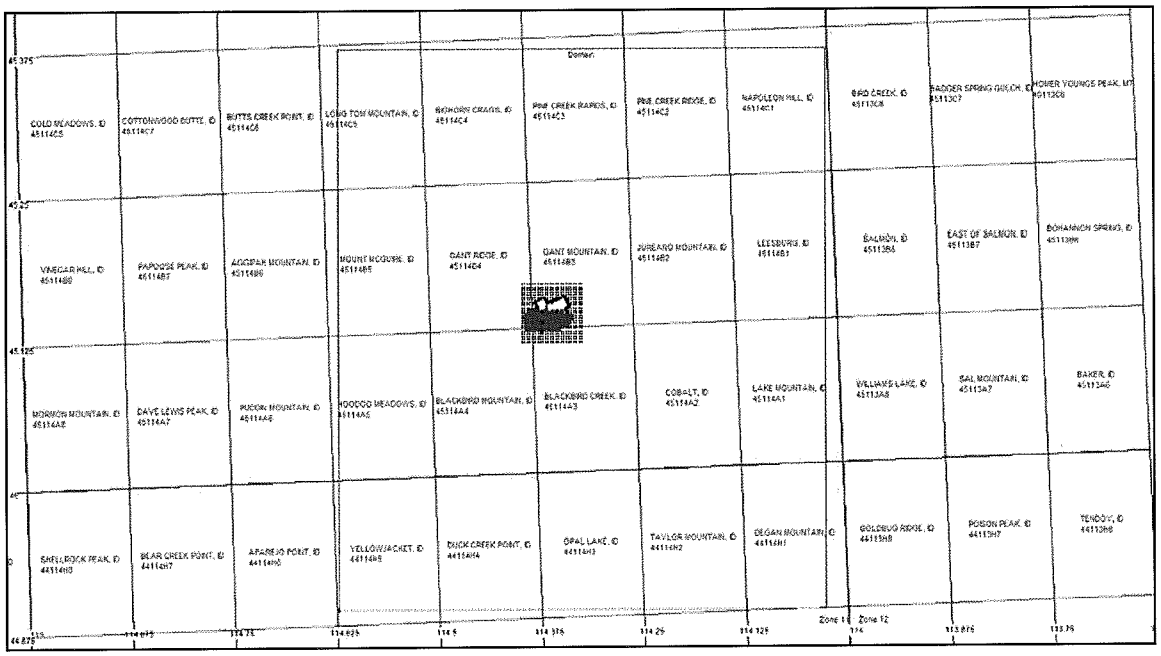


Figure 7-6 shows the facility, its ambient air boundary, the model receptor network (the black dots around the denser inner model receptors), the AERMOD model domain (the green line just inside USGS quad lines outside the receptor network), and the USGS quad maps that cover the model domain.

Figure 7-6 Model Domain and Receptor Network



All model predicted maximum facility impacts occurred at the ambient air boundary, within the 25 meter grid density. The vast majority of all predicted significant impacts occur within the areas of 25 to 50 meter grid density. The maximum impacts are shown to drop off significantly moving beyond the area of 50 meter model grid density.

The receptor networks employed in the modeling were consistent with those in the IDEQ approved modeling protocol and subsequent discussions resolving IDEQ comments associated with that protocol approval, and ensured that the analysis meets or exceeds IDEQ receptor network requirements and capture the maximum impact from the facility. Therefore, no supplemental receptor network or expansion of the model domain was required or included.

AERMAP Input and Elevation Data

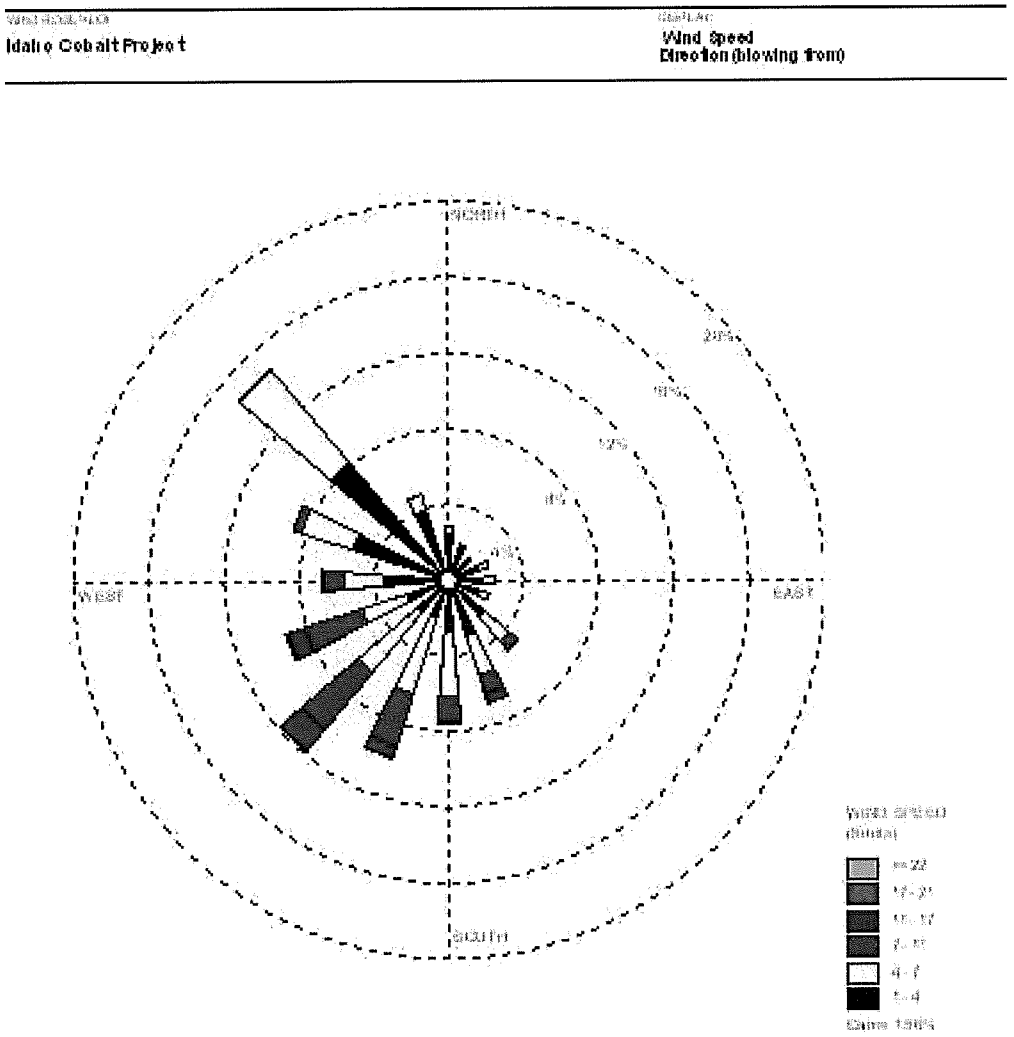
All building, tank, and source base and receptor elevations were calculated from USGS 7.5-degree 30m or less horizontal resolution DEM data (UTM NAD 27) downloaded from Geo Community www.geocommunity.com), the USGS freeware download system, using the Bee-Line BEEST preprocessing system. That same DEM data was used in the AERMAP preprocessor to prepare the terrain data for the model domain to run AERMOD. The anchor location and user location required by AERMAP was near the

center of the crusher and concentrator building area. Electronic data files sufficient to review or duplicate the AERMAP model application are included with this report.

Meteorological Data and Local Parameters

One year of meteorological data was used for the dispersion modeling analysis. Consistent with IDEQ's recommendations in the modeling protocol approval, NWS upper air data for Great Falls, MT for 2004 was purchased, and used with purchased NWS surface data in SAMSON format for Missoula, MT for that year. One year of onsite data for 2004 was Q/Aed and merged with the referenced Montana meteorological data using the AERMET computer program to generate 2004 SFC and PFL files based upon onsite data for use in AERMOD. Documentation on the generation of that meteorological data is included in the electronic files submitted in support of this permit application. A wind-rose of the meteorological data is provided in Figure 7-7.

Figure 7-7 Wind Rose for AERMET Generated Onsite Data File



Land Use Classification

The facility is in an unpopulated rural mountainous area that would be considered rural by the Auer classification scheme, or any other consideration. Therefore, rural dispersion algorithm was used everywhere in the modeling analyses.

Background Concentrations

The background concentrations used are the IDEQ recommended values for remote rural area ambient background concentrations by Mr. Mehr of IDEQ. They are appropriate since there is little development in the project vicinity, and little regular activity that would generate any emissions. The IDEQ rural remote background values used are shown below in Table 7-2.

Evaluation Of Compliance With Impact Standards

The impact limit standard applicable to this permit application are the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The IDAPA 58.01.01.585 and 586 limits for TAPs would be applicable if any TAP was shown to have the potential to be emitted above EL thresholds in those regulations. Predicted maximum total concentrations reported are the model predicted maximum ambient impacts during facility operation plus background concentrations for criteria pollutants. Model predicted maximum impacts are the highest predicted impact for the annual average period, and highest second maximum for all shorter averaging periods for criteria pollutants, consistent with Section 5.1 of the IDEQ Modeling Guidelines. Table 7-2 shows the maximum model predicted impact each year for each pollutant for each averaging period modeled. A percent of allowable impact column is included to be consistent with the IDEQ MI forms.

Table 7-2 Background Concentrations, Ambient Impact Limits and Method of Comparison with Ambient Air Quality Standards

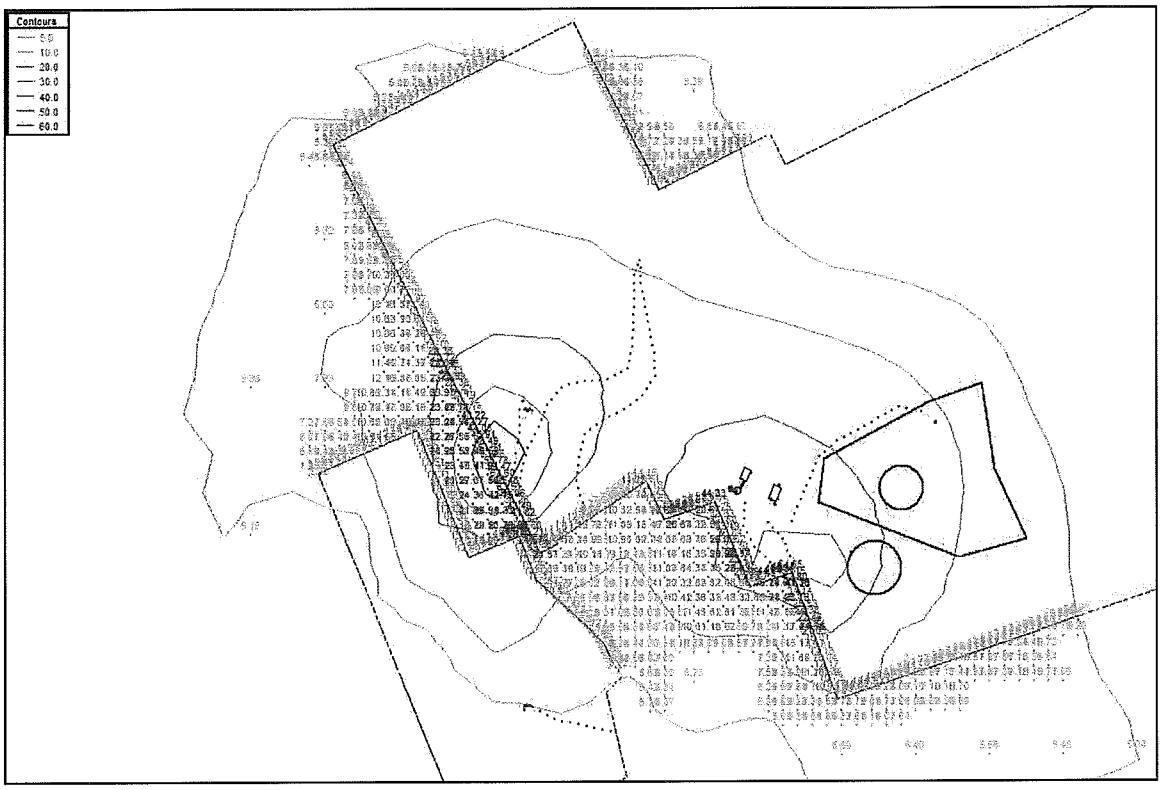
Pollutant	Averaging Period	Backgr Conc ($\mu g/m^3$)	Modeled Maximum Impact $\mu g/m^3$)			Total Concentration $\mu g/m^3$)	NAAQS $\mu g/m^3$)	Total Conc as % of applicable Impact limit	Location of maximum predicted impact
			Tram Scen	No Tram Scen	Sunsh Portal Scen	Max of any of the three scenarios			
PM_{10}	24-hour	43	66.4	65.6	56.7	109.4	150	72.9%	Bndry SW of Ram Portal at rd switchback
	Annual	9.6	18.0	17.9	18.4	28.0	50	56.0%	
NO_2	Annual	4.3	3.44	3.44	2.03	7.74	100	7.7%	Bndry W of Ram portal
SO_2	3-hour	34	310.1	310.1	310.1	344.1	1300	26.5%	Bndry W of crusher / conc bldgs
	24-hour	26	85.1	85.1	85.1	111.1	365	30.4%	
	Annual	8	5.2	5.2	5.2	13.2	80	16.5%	
CO	1-hour	3600	1443	1443	975	3743	40000	9.4%	Bndry W of Ram portal
	8-hour	2300	441	441	309	2741	10000	27.0%	

Results reported for the tram scenario for the Ram portal are very conservative because they include road traffic levels consistent with the no tram scenario (to avoid another lengthy model run), when in fact the tram would eliminate all haul truck traffic between the Ram portal and the crusher / concentrator area.

Maximum model predicted impacts for each pollutant and averaging period occurred at the ambient air boundary near project activity, where the model receptor network included receptors every 25 meters. The maximum impacts are shown to be well below all applicable impact levels for all criteria pollutants. PM-10 is the only pollutant for which ambient impacts are predicted to reach half the applicable impact limit. Predicted PM-10 impacts are caused by fugitive emissions, and are well below the significant limit within 1 kilometer of the ambient air boundary. The maximum predicted impact is driven by impacts from a switchback from the mine portal to the concentrator building that parallels the ambient air boundary. Ore truck traffic on that stretch under the No Tram scenario leads maximum fugitive particulate impacts. The modeling methodology makes those impacts also show up under the tram scenario, though the trucks that generate those impacts would not be running when the tram is operating. Total concentrations under worst-case operating conditions would not reach one third of the NAAQS for any pollutant other than PM-10. Maximum predicted facility impacts are shown to be low enough to prevent any ambient exceedances of that NAAQS under worst case operating conditions.

Figure 7-8 shows the maximum model predicted 24-hour average facility PM-10 impacts Those impacts occurred under the Tram scenario, which very conservatively included road emissions consistent with the higher traffic No Tram scenario. Maximum model predicted annual average PM-10 impacts occurred in the same location. The series of red dots along and then turning NE away from the ambient air boundary near the point of highest impacts are the model sources representing the road from the portal switching back up to the crusher / concentrator area. The Ram portal is to the NE of the maximum impact location, and is an insignificant contributor to impacts at the maximum impact location. A smaller secondary maximum impact area can be seen at the boundary in the vicinity of the crusher and concentrator buildings and their access roads to the south. All receptors with predicted significant 24-hour average impacts (maximum impact over 5 ug/m^3) are shown in bold. The significant impact area for annual average PM-10 impacts is effectively the same as the area shown here for 24 hour average. A plot of annual average impacts covering the entire significant impact area is included in the zipped electronic files provided on CD. As with all other pollutants, predicted impacts drop off to insignificant levels before the end of the receptor network.

Figure 7-8 Model Predicted Maximum 24-hour Average PM-10 Impacts



Electronic Copies of the Modeling Files

Electronic copies of all input, output, and support modeling files necessary to duplicate the model results are provided and accompany this submission. Those files include:

- ICP0708_2004_pp.ext, where
  pp = the pollutant ID as in Table 1, and
  ext = .DAT for AERMOD input files, .LST for AERMOD model output files
- ICP AERMAP.MAP and ICP AERMAP.MOU AERMAP input and output files
- The COBALT2.PFL and SFC AERMET meteorological data files used for the test analyses. As described above, five years of meteorological data recommended by IDEQ will be used for the final modeling analyses.
- BPIP files ICP.*

Appendix A

IDEQ Permit Application Forms

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/03/07

Please see instructions on page 2 before filling out the form.

DEQ USE ONLY
Date Received
Project Number
Payment / Fees Included? Yes ☐ No ☐
Check Number

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	Formation Capital Corporation, U.S.		
2. Facility Name	Idaho Cobalt Project	3. Facility ID No.	N/A
4. Brief Project Description - One sentence or less	Cobalt mine and mill.		

PERMIT APPLICATION TYPE

5. ☒ New Facility ☐ New Source at Existing Facility ☐ Unpermitted Existing Source
☐ Modify Existing Source: Permit No.:_____ Date Issued:_____
☐ Required by Enforcement Action: Case No.:_____

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms	DEQ Verify
☒	☐	Form GI – Facility Information	☐
☒	☐	Form EU0 – Emissions Units General	☐
☐	☒	Form EU1 - Industrial Engine Information Please Specify number of forms attached: _____	☐
☒	☐	Form EU2 - Nonmetallic Mineral Processing Plants Please Specify number of forms attached: _____	☐
☐	☒	Form EU3 - Spray Paint Booth Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU4 - Cooling Tower Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU5 – Boiler Information Please Specify number of forms attached: _____	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant Please Specify number of forms attached: _____	☐
☐	☒	Form CBP - Concrete Batch Plant Please Specify number of forms attached: _____	☐
☒	☐	Form BCE - Baghouses Control Equipment	☐
☐	☒	Form SCE - Scrubbers Control Equipment	☐
☒	☐	Forms EI-CP1 - EI-CP4 - Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	☐
☒	☐	PP – Plot Plan	☐
☒	☐	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability	☐

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/26/07

Please see instructions on page 2 before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION	
1. Company Name	Formation Capital Corporation, U.S.
2. Facility Name (if different than #1)	Idaho Cobalt Project
3. Facility I.D. No.	N/A
4. Brief Project Description:	Cobalt mine and mill
FACILITY INFORMATION	
5. Owned/operated by: (√ if applicable)	☐ Federal government ☐ County government ☐ State government ☐ City government
6. Primary Facility Permit Contact Person/Title	Preston Rufe, P.E., Environmental Manager
7. Telephone Number and Email Address	208-756-4578x24 / prufe@formcap.com
8. Alternate Facility Contact Person/Title	Guy Jeske, P.E., General Manager, Idaho Cobalt Project
9. Telephone Number and Email Address	208-756-4578x4 / gjeske@formcap.com
10. Address to which permit should be sent	812 Shoup Street
11. City/State/Zip	Salmon ID 83467
12. Equipment Location Address (if different than #10)	45 degrees 07' 50" N Lat., 114 degrees 21' 42" W Long.
13. City/State/Zip	Cobalt, Idaho
14. Is the Equipment Portable?	☐ Yes ☒ No
15. SIC Code(s) and NAISC Code	Primary SIC: 1061 Secondary SIC (if any): NAICS: 212229
16. Brief Business Description and Principal Product	Cobalt mining, milling and production of ore concentrate
17. Identify any adjacent or contiguous facility that this company owns and/or operates	N/A
PERMIT APPLICATION TYPE	
18. Specify Reason for Application	☒ New Facility ☐ New Source at Existing Facility ☐ Unpermitted Existing Source ☐ Modify Existing Source: Permit No.:_____ Date Issued: _____ ☐ Permit Revision ☐ Required by Enforcement Action: Case No.:_____

CERTIFICATION

IN ACCORDANCE WITH **IDAPA 58.01.01.123 (RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO)**, I CERTIFY BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION IN THE DOCUMENT ARE TRUE, ACCURATE, AND COMPLETE.

19. Responsible Official's Name/Title	Guy Jeske, P.E., General Manager, Idaho Cobal Project	
20. RESPONSIBLE OFFICIAL SIGNATURE	Guy Jeske	Date: 7/16/08
21. ☐ Check here to indicate you would like to review a draft permit prior to final issuance.		

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Formation Capital Corporation, U.S.	Facility Name: Idaho Cobalt Project	Facility ID No:
Brief Project Description:	Cobalt mine and mill.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION	
1. Emissions Unit (EU) Name:	CEMENT SILO
2. EU ID Number:	EP1501
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	COLUMBIAN TECHTANK
5. Model:	N/A
6. Maximum Capacity:	158 TONS
7. Date of Construction:	AUGUST 2008
8. Date of Modification (if any)	
9. Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT			
10. Control Equipment Name and ID:	EP1501		
11. Date of Installation:	August 2008	12. Date of Modification (if any):	
13. Manufacturer and Model Number:	Ultra Industries Model BB-25-58-IIG		
14. ID(s) of Emission Unit Controlled:	EP1501		
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☒ Yes ☐ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	99.8%	99.8%				

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)	
18. Actual Operation	22/7/50 WEEKS
19. Maximum Operation	24/7/50 WEEKS

REQUESTED LIMITS	
20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

Industrial
Air Filtration
Equipment

ULTRA INDUSTRIES, INC.

2300 South Street
Racine, WI 53404
(262) 633-5070
FAX: (262) 633-5102

OUR WARRANTY FOR EMISSIONS IS AS FOLLOWS:

ULTRA INDUSTRIES, INC. warrants that the particulate matter concentration in the effluent gas will not exceed an average of 0.02 grains per actual cubic foot, when the inlet particulate concentration is 20 grains (or less) per cubic foot. The warranty is based on particles over 2 microns in diameter, and on the equipment being properly installed and maintained according to ULTRA INDUSTRIES, INC. instructions. Effluent testing, if required, will be conducted in general accordance with the procedures outlined in the power test code #27-1957 (ASME).

GENERAL DIMENSIONS

NO. OF BAGS	BAG LGH (IN)	FILTER AREA (SQ. FT.)	NO. OF VALVES	100 PSI COMP. AIR (SCFM)	EST. WEIGHT (LBS.)	OUTLET SIZE (IN)	A	B	C	D	E	F
BB 4	36	17	2	2.0	262	2"ø	1'-4"	3'-10"	5'-2"	18"	3 SP @ 4	20
	58	29		2.2	333	THRU	1'-4"	5'-8"	7'-0"			
	84	43		2.7	405	3"ø	1'-4"	7'-10"	9'-2"			
BB 9	36	39	3	4.0	399	3"ø	2'-0"	3'-10"	5'-2"	26"	5 SP @ 4	28
	58	65		4.5	493	THRU	2'-0"	5'-8"	7'-0"			
	84	95		5.0	575	6"ø	2'-0"	7'-10"	9'-2"			
BB 16	58	115	4	5.9	675	5"ø	2'-8"	5'-8"	7'-0"	34"	7 SP @ 4	36
	84	170		6.2	785	THRU	2'-8"	7'-10"	9'-2"			
	100	203		6.4	887	8"ø	2'-8"	9'-2"	10'-6"			
BB 25	58	180	5	6.8	879	7"ø	3'-4"	5'-8"	7'-0"	42"	9 SP @ 4	44
	84	265		7.5	1017	THRU	3'-4"	7'-10"	9'-2"			
	100	317		7.8	1289	11"ø	3'-4"	9'-2"	126"			
BB 36	58	259	6	8.2	1242	9"ø	4'-0"	5'-8"	7'-0"	50"	11 SP @ 4	52
	84	382		8.4	1444	THRU	4'-0"	7'-10"	9'-2"			
	100	457		8.8	1600	12"ø	4'-0"	9'-2"	10'-6"			

CUSTOMER DATA

_____ AIR VOLUME
_____ FILTER AREA
_____ AIR/CLOTH RATIO
_____ PRODUCT
_____ TEMPERATURE
_____ DUST LOADING

CONSTRUCTION

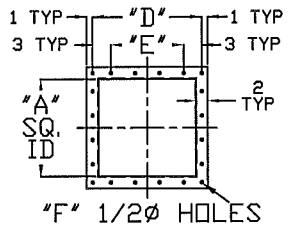
____ MS (STANDARD)
____ SS (DUST CONTACT)
____ SS (GAS CONTACT)
____ OTHER_____

FILTER BAGS

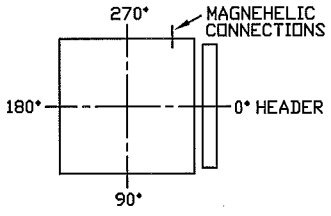
____ STANDARD 16 OZ. PE
____ OTHER_____

OPTIONS & ORIENTATIONS

____ OUTLET _____
____ BIRDSCREEN _____
____ C.A.P. ACCESS _____
____ D.A.P. ACCESS _____
____ PLATFORM _____
____ LADDER _____
____ FAN _____
____ INTERIOR PAINT _____
____ SUPPORT GRID _____
____ EXPLOSION DOOR _____
____ INSULATION _____
____ SPRINKLER _____
____ SOLENOID BOX _____
____ PULSE ON DEMAND _____
____ PRESSURE SWITCH _____
____ OTHER _____



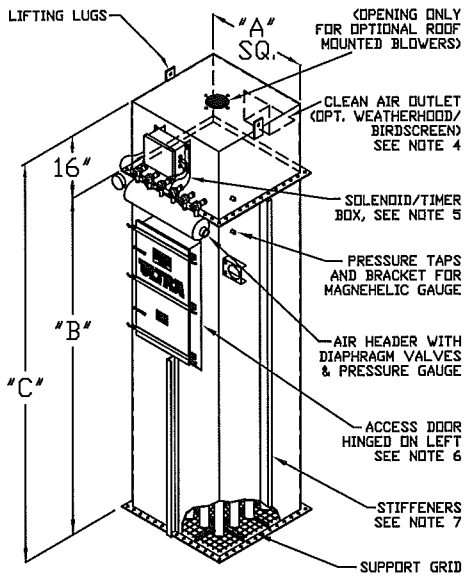
COLLECTOR BASE FLANGE
FORMED 2 X 12 GA.



ORIENTATION VIEW
FOR LOCATING COMPONENTS ONLY

SHOP NOTES

1) DESIGN PRESSURE UP TO +/- 20" W.G.
2) SURFACE FINISH: ALL EXTERIOR MS SURFACES
FINISH: ONE (1) COAT SHERWIN WILLIAMS METALASTIC DTM ACRYLIC MODIFIED ENAMEL (SWB55Z600SHG) ULTRA GRAY @ 4 MILS D.F.T. MIN.
3) AIR HEADER IS ALWAYS LOCATED AT 0 DEGREES.
4) CLEAN AIR OUTLET CANNOT BE AT 0 DEGREES.
5) A NEMA 4 SOLENOID/TIMER BOX ASSEMBLY IS SUPPLIED. THE SOLENOID VALVES ARE PREWIRED TO THEIR RESPECTIVE TIMER OUTPUT TERMINALS. THE SOLENOID PORT IS PRE-CONNECTED TO ITS RESPECTIVE DIAPHRAGM VALVE RELIEF PORT USING POLY-FLOW TUBING.
6) ALL UNITS WITH 58" & 84" FILTER BAGS WILL HAVE 20" X 36" HINGED ACCESS DOORS. ALL UNITS WITH 100" FILTER BAGS WILL HAVE 20" X 44" HINGED ACCESS DOORS. MODEL BB-9-36 WILL HAVE A 20" X 24" HINGED ACCESS DOOR. MODEL BB-4-36 WILL A 16" X 24" BOLTED ACCESS DOOR. MODEL BB-4-58 WILL HAVE HAVE A 16" X 36" BOLTED ACCESS DOOR.
7) STIFFENERS WILL BE USED ON (BB-36 & BB-25-100) UNITS ONLY.
8) GENERAL ARRANGEMENT IS TO BE USED FOR REFERENCE ONLY AND NOT FOR CONSTRUCTION UNLESS CERTIFIED BY CUSTOMER.



REV.	DESCRIPTION	DATE BY

UNITS
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.

TOLERANCES
FRACTIONAL ± 1/8" ANGULAR ± .5°

ULTRA INDUSTRIES, INC.
1908 DEKOVEN AVE. RACINE, WISCONSIN 53403
PHONE: 262/633-5070 FAX: 262/633-5102

FOR SPARE PARTS, CALL: 1-800-35ULTRA

SCALE:	N.T.S.	SERIAL NO.:	ARRANGEMENT II	DRAWN BY:	MLD
DATE:	1-2000			APPROVED BY:	

GENERAL ARRANGEMENT

MODEL	DRAWING NUMBER	REV.
BB-4 -- BB-36 COLLECTORS BOTTOM BAG REMOVAL	BB4-36 II	0

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Formation Capital Corporation, U.S.	Idaho Cobalt Project	
Brief Project Description:	Cobalt mine and mill.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	FINE ORE BIN
2. EU ID Number:	EP1401
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	BOSS TANK
5. Model:	13311
6. Maximum Capacity:	510 TONS
7. Date of Construction:	AUGUST 2008
8. Date of Modification (if any)	
9. Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:	EP1401		
11. Date of Installation:	August 2008	12. Date of Modification (if any):	
13. Manufacturer and Model Number:	CPE Filers Inc		
14. ID(s) of Emission Unit Controlled:	72-BF-016-C		
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☒ Yes ☐ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	72%	72%				

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	22/7/50 WEEKS
19. Maximum Operation	24/7/50 WEEKS

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	

C.P.E.
FILTERS
INC.

June 26, 2008

Mr. John Kelly
Samuel Engineering, Inc.
8450 E. Crescent Parkway
Suite 200
Greenwood Village, CO 80111

Subject: Emissions Warranty
Samuel P. O. No. 7031-01-P-M-113
Project 1200-BN-203; Cobalt Concentrator Project
CPE Filters Job No. 6799

Mr. Kelly:

As you requested in your email to our representative, Mr. Key Irwin of TechnaFlo in your email dated June 25, 2008, CPE Filters is pleased to provide you with the following Emissions Warranty:

C. P. E. Filters, Inc. warrants that the particulate matter concentration in the effluent gas will not exceed an average of 0.02 grains per actual cubic foot. The guarantee is based on the operating parameters as listed below, that the dust particles are two (2) microns and larger in diameter, and that the equipment is being properly installed and maintained according to the standard C. P. E. Filters' instructions. Effluent testing, if required, will be conducted generally in accordance with the procedures as outlined in Title 40, Part 60 of the Code of Federal Regulations. The effluent tests shall not take into consideration condensables."

Dust Collector Operating Parameters for CPEF Job No. 6799

* *Information to be supplied by Purchaser*

Model No.	72-BF-016-C	Air-to-Cloth Ratio	4.73:1 acfm/ft^2
Gas Volume	700 acfm	Operating Pressure	-6" w. g.
Cloth Area	148 ft^2	Bag Material	16 oz. Singed Polyester Felt
Quantity of Bags	16	Gas Temperature	Ambient
Bag Dimensions	5-7/8" Dia. x 74" L	Dust Loading	*
Dust Material	Cobalt Fines	End Use	Silo Bin Vent Filter
Dust Bulk Density	125 – 140 lb/ft^3		

5 Earl Court, Suite 130, Woodridge, IL 60517 • 630.771.9993 • Fax: 630.771.9994
Toll Free: 866.771.CPEF (2733)

Dust Collector Operating Parameters for CPEF Quotation No. SF-13710 Rev. 03

* *Information to be supplied by Purchaser*

Model No.	120-TNFD-420-C	Air-to-Cloth Ratio	4.15:1 acfm/ft^2
Gas Volume	27,000 acfm	Operating Pressure	-14" w. g.
Cloth Area	6,510 ft^2	Bag Material	16 oz. Singed Polyester Felt
Quantity of Bags	420	Gas Temperature	<250°F
Bag Dimensions	5-7/8" Dia. x 120" L	Dust Loading	10 grains/dscf
Dust Material	Cobalt Fines	End Use	*
Dust Bulk Density	140 lb/ft^3		

We trust that the above is to your satisfaction. If you have any questions or comments, please do not hesitate to contact this office.

Sincerely,
C. P. E. FILTERS, INC.

Scott Franco
Regional Sales Manager
sfranco@cpef.com

SDF

cc: Mr. Key Irwin
TechnaFlo, Inc.
P. O. Box 3479
Englewood, CO 80155
Tel: 303-699-9844
Fax: 303-693-8449
kirwin@techna-flo.com

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Formation Capital Corporation, U.S.	Facility Name: Idaho Cobalt Project	Facility ID No:
Brief Project Description:	Cobalt mine and mill.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION	
1. Emissions Unit (EU) Name:	STANDBY GENERATOR
2. EU ID Number:	EP101
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	CATERPILLAR
5. Model:	3412TA
6. Maximum Capacity:	650 KW
7. Date of Construction:	AUGUST 2008
8. Date of Modification (if any)	
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT			
10. Control Equipment Name and ID:	N/A		
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Same filter as for cement silo, which has > 99.9% man guarantee

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)	
18. Actual Operation	28 HRS/YR
19. Maximum Operation	500 HRS/YR

REQUESTED LIMITS	
20. Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	500 HRS/YR
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	WILL ONLY BE USED AS BACKUP IF ELECTRIC SERVICE TO FACILITY FAILS

Emissions Units - Nonmetallic Mineral Processing Plant **Form EU2**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page 2 before filling out the form.

This form requests information about equipment at a nonmetallic mineral processing plant, as defined in 40 CFR 60.671, that generates fugitive emissions only.

In addition, forms EU0 and appropriate control equipment forms should be used for each stack emission point from the same plant.

IDENTIFICATION		
Company Name: Formation Capital Corporation, U.S.	Facility Name: Idaho Cobalt Project	Facility ID No:
Brief Project Description: Cobalt mine and mill.		

EQUIPMENT (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS					
1. Equipment Description	2. Construction Date	3. Serial Number	4. Equipment ID Number (company's)	5. Rated Capacity	6. Emission Control Type
Loading					
Primary Crusher feed bin			EP1201	40 - 50 Tons	
Stockpile - Ore	August 2008		EP301	800 Tons	
Stockpile - Waste	August 2008		EP401	300 Tons	
Stockpile - Topsoil	August 2008		EP1701	800 Tons	
Stockpile - TWSF	August 2008		EP603	300 Tons	
Crushing Building					
Jaw crusher	August 2008		Vented via EP201	Crush / screen process Cumulatively 1067 tons/day	EP201 Baghouse
Cone Crusher	August 2008		Vented via EP201	Crush / screen process Cumulatively 1067 tons/day	EP201 Baghouse
Screen	August 2008		Vented via EP201	Crush / screen process Cumulatively 1067 tons/day	EP201 Baghouse
Tram bin hopper	August 2008		EP1101		
				1500 tons/day	Gravel, roads, watered and chemical dust suppr
Loader grabs				>1500 tons per day	Sometimes moist material
Loader drops				>1500 tons/day	Gravel, roads, watered and chemical dust suppr
Truck dumps				>1500 tons/day	Often moist material
Road dust					
7. Actual Operation	1100 tons per day: 22 hours/day, 7 days/week				
8. Maximum Operation	1500 tons per day: 24 hours/day, 7 days/week				

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/02/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Formation Capital Corporation, U.S.	**Facility Name:** Idaho Cobalt Project	**Facility ID No.:**
Brief Project Description: Cobalt mine and mill.		

IDENTIFICATION				BAGHOUSE			BAGS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Emission Unit	EU ID No.	CE ID No.	Stack ID No.	Baghouse Manufacturer	Baghouse Model No.	Type	Type	Size (Dia x Ht)	No. of Bags	Air to Cloth
Ore Crusher/Screens	EP 201	EP 201	EP 201	CPE Filters	120-TNFD-420-C	Pulse Jet	Polyester	5.75" x 120'	420	4.15
Fine Ore Storage	EP 1401	EP 1401	EP 1401	CPE Filters	72-BF-016-C	Pulse Jet	Polyester	5.75" x 74	16	4.73
Cement Silo	EP 1501	EP 1501	EP 1501	Ultra Industries	BB-25-58-IIG	Pulse Jet	Polyester	6" x 58"	25	3.61

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION
Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Formation Capital Corp.
Facility Name:	Idaho Cobalt Project
Facility ID No.:	
Brief Project Description:	Cobalt mine and mill.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Emergency Generator	EP101	0.78	0.20	4.53	1.13	14.55	3.64	6.15	1.54	0.79	0.20		
Crushing Dust Collector	EP201	0.12	0.21										
Total		0.91	0.41	4.53	1.13	14.55	3.64	6.15	1.54	0.79	0.20		

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Formation Capital Corp.
Facility Name:	Idaho Cobalt Project
Facility ID No.:	
Brief Project Description:	Cobalt mine and mill.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													

Instructions for Form EI-CP1

This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of all emission units at the facility. This name must match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the stack which the emission unit exits.

3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this point source. In this form, emission rates for a point source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION
Revision 2
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Formation Capital Corp.
Facility Name:	Idaho Cobalt Project
Facility ID No.:	
Brief Project Description:	Cobalt mine and mill.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													
Ore Stockpile	EP301	0.02	0.00										
1200-LD-201- Tram Bin to Coarse	EP302	0.11	0.15										
Loader grab from Coarse Ore Stoc	EP303	0.04	0.07										
Waste Rock Stockpile	EP401	0.01	0.00										
1200-LD-201- Tram Bin to Waste F	EP402	0.11	0.07										
Loader grab from Waste Rock Sto	EP403	0.01	0.03										
Loader dump Waste Rock Stockpil	EP404	0.01	0.03										
Conc bldg tailings pile	EP501	0.00	0.00										
Loader grab from Tailings Stockpil	EP502	0.00	0.00										
Loader dump Tailings to Truck	EP503	0.00	0.00										
TWSF Waste Rock truck dumping	EP601	0.00	0.00										
TWSF area management	EP602	0.28	0.20										
TWSF wind eroision	EP603	2.56	5.60										
Truck Dumps Tailings TWSF	EP604	0.00	0.00										
Roads (max of 3 scenarios)	EP901 or 902	3.82	5.74										
Loader Traffic	EP1001	0.15	0.25										
1200-BN-201 - Mined Rock to Trar	EP1101	0.00	0.00										
1200-FE-201 - Bin to Tram	EP1102	0.11	0.22										
Loader drop to Primary Crusher fe	EP1201	0.04	0.07										
1200-BN-203 - Fine Ore Bin (in)	EP1401	0.00	0.00										
1200-BN-203 - Fine Ore Bin (out) f	EP1402	0.00	0.00										
Cement Silo (in)	EP1501	0.01	0.00										
Cement Silo (out) fully enclosed	EP1502	0.00	0.00										
Underground emissions from mine	P1601 or 3001	1.58	1.72										
Load /Unload at Topsoil stockpile	EP1701	0.00	0.00										
Topsoil Stockpile	EP1702	0.29	0.01	0.57	0.55	4.82	4.69	18.98	18.48				

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION
Revision 2
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Formation Capital Corp.
Facility Name:	Idaho Cobalt Project
Facility ID No.:	
Brief Project Description:	Cobalt mine and mill.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													
Truck Dump Crusher Ore Pile (no t	EP1301	0.00	0.00										
Mined Rock truck dump (no tram s	EP1303	0.00	0.00										
Loader grab from mined rock pile (	EP1304	0.05	0.10										
Mined Rock stockpile (no tram sce	EP1302	0.01	0.00										
Truck Dump Crusher Ore Pile (no t	EP2001	0.00	0.00										
Total		9.20	14.27	0.57	0.55	4.82	4.69	18.98	18.48				

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 2 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Formation Capital Corp.
Facility Name:	Idaho Cobalt Project
Facility ID No.:	
Brief Project Description:	Cobalt mine and mill.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													

Instructions for Form EI-CP2

This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

Fugitive emissions are those emissions that cannot reasonably be made to pass through a stack or vent or equivalent opening. Examples include coal piles, unpaved roads, etc. Fugitive emission sources at your plant must be included in this form.

1. Provide the name of all fugitive sources at the facility. This name must match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the fugitive source. This ID number should match ID numbers on other submittals to IDEQ and within this application.

3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this fugitive source. In this form, emission rates for a fugitive source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, then, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION
Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Formation Capital Corp.
Facility Name:	Idaho Cobalt Project
Facility ID No.:	
Brief Project Description:	Cobalt mine and mill.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Emergency Generator	EP101	0.78	0.20	4.53	1.13	14.55	3.64	6.15	1.54	0.79	0.20		
Crushing Dust Collector	EP201	0.12	0.21										
Total		0.91	0.41	4.53	1.13	14.55	3.64	6.15	1.54	0.79	0.20		

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Formation Capital Corp.
Facility Name:	Idaho Cobalt Project
Facility ID No.:	
Brief Project Description:	Cobalt mine and mill.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													

Instructions for Form EI-CP3

This form is designed to provide the permit writer and air quality modeler with a summary of the change in criteria pollutant emissions of each emission unit/point associated with this permit application. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of the emission unit. This name should match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the stack which the emission unit exits.

3. Provide the increase in emissions in pounds per hour and tons per year for all criteria pollutants emitted by this emission unit. In this form, increase in emissions for an emission unit are the proposed PTE - Previously modeled PTE. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, then, the control efficiency or proposed permit limit(s) may be used in calculating proposed potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.